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ABSTRACT

The Child Development Project (CDP) is a school-based program designed to foster children's social, ethical, and intellectual development through activities emphasizing cooperative learning, developmental discipline, social understanding, interpersonal helping, and prosocial values. The CDP was implemented in kindergarten through fourth grade by regular classroom teachers with a cohort of students who began kindergarten in fall 1983 in three northern California elementary schools. At one of the schools, CDP continued through grade 6. Students from two CDP and two comparison schools entered the same intermediate school, where long-term effects of the program were assessed. In kindergarten and grades 2, 4, and 8, individual interviews with the CDP and comparison students were conducted to assess certain social skills, inclinations, and values. In addition, group questionnaires were administered in grades 7 and 8. Study findings indicated that the program had some sustained effects on children's social development. Conflict resolution, which had shown strong effects in earlier years, maintained this effect in the eighth grade. Two moral reasoning variables concerned with helping and responding to transgressions showed a small effect when combined across years. Self-esteem, which had not shown an effect when last assessed in elementary school, showed a quite strong effect in eighth grade. Finally, the program's effect on democratic values, which was significant in grade 4, disappeared by grade 8. (AC)

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A LONGITUDINAL INVESTIGATION OF THE EFFECTS OF A SCHOOL INTERVENTION PROGRAM ON CHILDREN'S SOCIAL DEVELOPMENT

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A LONGITUDINAL INVESTIGATION OF THE EFFECTS OF A SCHOOL INTERVENTION PROGRAM ON CHILDREN'S SOCIAL DEVELOPMENT

DANIEL SOLOMON, VICTOR BATTISTICH AND MARILYN WATSON

The Child Development Project (CDP) is a school-based program designed to foster children's social, ethical and intellectual development. The project is guided by an explanatory model which assumes that students have basic needs for *autonomy, competence,* and *belonging,* and are motivated to adopt and internalize the norms and values of a community that fulfills these needs. The CDP program attempts to help teachers create such classroom communities—which we call "caring communities of learners." We assume that when the community espouses and exemplifies such values as concern for others, intrinsic interest in learning, and desire for understanding, students in the community will come to hold them as well.

THE CDP PROGRAM

The CDP program includes many activities (such as class meetings, partner and small group learning activities, and open-ended and value-focused literature discussions) which are designed to (a) meet students' basic psychological needs, (b) foster such values as concern for others, fairness, and love of learning, and (c) teach the academic and social skills needed to be productive members of a democratic society.

These activities are organized into five components:

1. *Cooperative learning*, in which children work with one another in pairs or small groups on complex, open-ended, and intrinsically interesting learning activities; and thereby learn to work with others in ways that are fair, kind, and respectful (and to value such activity).

2. *Developmental discipline,* a socialization approach to classroom management which tries to create a sense of community in the classroom by (a) building students' intrinsic motivation for both academic and social activities, (b) avoiding the use of extrinsic incentives (rewards or punishments) in either the academic or interpersonal realms, (c) maximizing student opportunities for autonomy and responsibility, (d) involving students in making classroom

decisions (including rules for the class) and in frequent class meetings to discuss plans, concerns and problems, and (e) teaching students interpersonal and self-control skills, and how to apply prosocial values to everyday situations.

3. Activities promoting *social understanding* (both within and beyond the students' immediate community), including reading and discussing literature dealing with interpersonal and cross-cultural issues, assemblies in which different communities and cultures are presented, discussed or celebrated, class discussions about interpersonal problems in the classroom, etc.

4. Activities promoting *interpersonal helping*, including involving all class members in classroom chores, encouragement of interpersonal helping in the classroom, and participation in activities to help the school in general, the surrounding community, and (in some cases) other people or communities.

5. Focus on *prosocial values*, through comments made by the teacher, reading and discussing relevant literature, and explicitly invoking the values of fairness, kindness, responsibility and interpersonal respect as guides for establishing class rules and procedures and for thinking about the acceptability of different actions.

For more detailed descriptions of the CDP program see Battistich et al, 1991; Solomon et al, 1992; and Watson et al, 1989.

DESIGN

The program was implemented by the regular classroom teachers of a cohort of students who began kindergarten in the fall of 1983 in three elementary schools in a middle-class suburban community in northern California. Three additional elementary schools in the same district served as a comparison group. Originally, a group of six schools was selected, and divided into two subgroups of three that were, overall, quite similar in terms of student and community demographic characteristics. One of these subgroups was then randomly selected to conduct the program, the other to be the comparison group. Extensive baseline assessments (including the interview measures described in this paper) of a random sample of students at the

program and comparison schools during the spring of the year prior to the introduction of the CDP program revealed no large or consistent differences between the two groups of students.

The program was administered in each of the cohort students' classes as they progressed through elementary school, beginning with kindergarten in 1982-83 (although after 4th grade, the training emphasis was limited to one of the three program schools).

After completing sixth grade, students from four of the participating schools, two program and two comparison, entered the same intermediate school. Follow-up assessments of the former CDP students were conducted during their two years at this school. These consisted of (a) an individual interview, given at 8th grade, designed to assess certain social skills, inclinations and values, that had previously been administered to the same students at grades K, 2 and 4; (b) group-administered questionnaires, given in 7th and 8th grades.

In this paper, we focus on the longitudinal cohort of students who began with the project in kindergarten and continued through the eighth grade. Analyses of data from the elementary years is limited to the four schools that fed into the intermediate school. The sample size at kindergarten in these four schools was 217. The number of these original students on whom we were able to obtain data in the eighth grade ranged from 50 to 57 (depending on the type of data), or 23% to 26% of the original sample. The analyses reported in this paper involve this longitudinal sample.

Student Assessments

We are limiting the description and analyses in the present paper to variables that were assessed at 8th grade and at one or more earlier grades. (Thus, although we also gave a questionnaire at 7th grade, we are not including findings from this assessment because the variables had not been assessed earlier.) The interviews and questionnaires from which these variables were derived also included a number of additional variables, which are not discussed in the present report. For further information about the interview and questionnaire measures used in this project, see Deer et al. 1988.

The interview measures used in the repeated assessments related to three domains: *helping*, *transgressions*, and *conflict resolution*.

The *helping* measure was based on a procedure developed by Eisenberg (Eisenberg-Berg & Hand, 1979). The child was read a series of four brief vignettes concerning potential helping situations (in each of which helping would entail some cost to the self), and was asked what he or she would do in that situation and why. One vignette, for example, asked the child to imagine walking with a friend who fell in a river and got cold and wet. The child was asked if he/she would give the friend his/her own jacket, even though the result would be that he/she would then also be cold, and was then asked for reasons for the response. Two measures were derived from these responses: (1) tendency to help (with high scores indicating greater expressed willingness to help across the vignettes), and (2) reasons for helping or not helping. The reasons were scored according to a system in which self-centered or indifferent responses were given low scores, empathic, prosocial, or value-invoking responses were given high scores. The scores were combined across vignettes.

The *response to transgression* measure was developed for this project. Three different situations were described in which a child had done something bad (e.g., stealing a puzzle from a friend) and was later thinking about it. The child was asked what the hypothetical child was thinking, what he/she would do next, and why. Three scores were derived from this: (1) acknowledgment that the transgression was the wrong thing to do, (2) the proposed action (with aggressive or self-centered responses scored low, responses involving apology or reparation scored high), and (3) the reason for the action (with self-centered reasons scored low, prosocial, empathic, or value-invoking reasons scored high).

The *conflict resolution* measure was also developed for this research. Three situations were described to the child, in each of which another child had done something (e.g., had taken a calculator the focal child was using before he/she was finished) that could evoke an aggressive response. The child was asked what he/she would do in that situation and why that course of action would be chosen. An obstacle was then posed ("Suppose that didn't work. . ."), and a

second course of action was solicited. A single conflict resolution score was derived from the responses to each situation, and averaged across the situations; low scores indicate an exclusive focus on one's own needs and a reliance on aggressive or passive responses, whereas high scores indicate explicit consideration of the other's needs as well as one's own, and a reliance on the use of explanation, reasoning, or offers to share or compromise.

Three variables were assessed by questionnaires given in both 4th and 8th grades: *democratic values*, *self-esteem*, and *empathy* . The measure of *democratic values* was adapted from a measure developed by Solomon and Kendall (1979), with subscores representing *assertion responsibility*, *willingness to compromise*, and *equality of representation and participation.* The measure of *self-esteem* was also adapted from Solomon & Kendall (1979), while the measure of *empathy* was adapted from Bryant (1982).

RESULTS

Initial Similarity of Students in Program and Comparison Schools

Because the sample used in these analyses was greatly reduced from the initial kindergarten sample, we did a multivariate analysis of variance to determine whether the program and comparison students in the longitudinal sample were similar at kindergarten. This analysis included the six interview variables that were assessed periodically through the 8th grade, and also included five other variables that were assessed in one or more earlier years, but not at 8th grade This analysis did not show a significant multivariate difference, or any significant univariate differences, between the program and comparison students.

Representativeness of Longitudinal Sample

To determine whether there were any systematic differences between the kindergarten students who remained with the project through 8th grade and those who did not, we conducted additional multivariate analyses of variance with the same 11 interview variables as in the above analysis as dependent variables, and sample (longitudinal vs. all other students interviewed at kindergarten), school status (program vs. comparison), and sex as independent variables. In one

analysis, the non-longitudinal students were limited to those in the four schools that fed into the same intermediate school; in the other, we included students from all six original schools. The results were similar in both analyses: there were no significant multivariate main effects or interactions for any of the independent variables, indicating that the longitudinal sample was well representative of the full sample at kindergarten.

Program Implementation

Repeated classroom observations—using a structured classroom observation system (described in Solomon et al, 1988)—were conducted each year in the cohort-grade classrooms, and provided clear evidence that the program was, in fact, implemented (although at somewhat varying levels from teacher to teacher). A multivariate analysis of variance, with grade and school status (program vs. comparison) as independent variables and scores for the component indices as dependent variables, produced a highly significant multivariate status effect ($p=.0001$, $eta^2=.50$), and significant univariate status effects for each of the components except developmental discipline (with p levels ranging from .01 [$eta^2=.16$] to .001 [$eta^2=.30$]). Mean standardized scores for indices of each of the program components and for a total implementation index, averaged across the years when the cohort students were in kindergarten through the fourth grade, are shown, by program status, in Fig. 1.

The Intermediate School Setting

Although we had found repeated positive effects on a number of variables during the students' elementary school years (including *conflict resolution, social problem-solving, democratic values,* and *prosocial behavior in the classroom*; see Battistich et al, 1989, Solomon et al, 1988, and Solomon et al, 1990 for a description of program effects during elementary school), there was some doubt as to whether these effects could survive the transition to the intermediate school environment, particularly given the simultaneous emergence of these students into adolescence, with its particular priorities and concerns. To get some idea of the continuity or discontinuity of the new school environment with those to which the students had

been accustomed, we conducted some informal observations and some interviews with groups of students during the year prior to that in which the students in the present sample entered the school. Our findings, consistent with those reported by Midgley, Feldlaufer, and Eccles (1988), indicated that the intermediate school environment, although pleasant in many ways, was highly regimented, tightly structured, and afforded students relatively little autonomy.

To get further information about this, we administered a questionnaire to teachers in the intermediate school the year before the project students entered, and to teachers at all grades in the elementary schools during the same year (when the cohort students were in sixth grade). This questionnaire included a measure of teachers' *control ideology* (showing the degree to which they favor providing students autonomy—from Deci, Schwartz, Scheinman, & Ryan, 1981), and several *teacher opinion* scales used by Midgley et al (1988). We also included *school climate* measures, and have examined several of the climate items that seemed particularly relevant. Results of these analyses are shown in Table 1. The results are quite consistent with those reported by Midgley et al, and with our own informal observations. Intermediate school teachers differed, in their opinions and perceptions, from the elementary teachers in general, particularly the program school teachers. The intermediate teachers were less trusting of students, felt a greater need to control them, and were more likely to use extrinsic means (rewards or punishments) to do so. They saw their school as more controlled, as being more business-like and orderly, and as providing for less student autonomy.

This was a decided contrast with the more flexible and participatory environment the students had experienced in elementary school, especially those in the program schools. The new environment did not seem consistent with the emphases of the CDP program, and we therefore wondered whether any of the previously-found effects would be sustained during intermediate school.

Student Outcomes

Using the longitudinal sample, the six interview variables were analyzed with a multivariate, mixed-model analysis of variance, with grade as a repeated measure, and status (program vs. comparison) and sex as between-group factors.

There were multivariate effects for grade ($p=.001$, $eta^2=.87$; with the variables generally showing increases over time, although the transgression measures dipped downward at 8th grade); and for status ($p=.04$, $eta^2=.26$; with the program children's scores generally higher). Univariate status effects were found for *transgression reasoning* ($p=.10$, $eta^2=.06$), *helping reasoning* ($p=.04$, $eta^2=.09$) and *conflict resolution* ($p=.02$, $eta^2=.12$), with the program students scoring higher in every case. A significant grade by status interaction ($p=.04$, $eta^2=.06$) was found for *helping reasoning* (where scores were higher for comparison students in kindergarten, but became higher for program students thereafter; with the difference significant at grade 2 [$p=.02$, $eta^2=.12$]). The only variable for which program students scored significantly higher than comparison students at eighth grade was *conflict resolution* ($p=.09$, $eta^2=.06$). (Program students also scored significantly higher on this variable at 4th grade [$p=.002$, $eta^2=.21$].) The univariate grade effects were highly significant for all variables. Mean scores, by grade and school status, for the interview variables that had significant status main effects or interactions, are shown in Figures 2 - 4.

Additional analyses were conducted with a set of questionnaire measures that had been repeated over a shorter time-span (4th and 8th grades), but with the same sample of students who had been with the project since kindergarten. The repeated variables included *self-esteem*, *empathy*, and *democratic values*. A multivariate analysis of variance on these variables (with status, sex, and grade as independent variables) showed significant multivariate effects for status ($p=.06$, $eta^2=.15$), sex ($p=.001$, $eta^2=.36$)[1], and the status by grade interaction ($p=.001$, $eta^2=.15$).

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[1] We included sex as a variable mainly to see whether it interacted with program status or grade, which it did not in any of these analyses. The sex effect was produced by a difference favoring boys in *self-esteem* ($p=.01$, $eta^2=.13$) and a difference favoring girls in *empathy* ($p=.001$, $eta^2=.20$). There was also a

There was a significant univariate effect of status on *self-esteem* , with program students scoring higher (p=.01, eta^2=.13), and a significant status by grade interaction for *self-esteem* (p=.03, eta^2=.09), where program students increased more than comparison students across these four years (and scored significantly higher at 8th grade [p=.004, eta^2=.16] but not 4th grade). Finally, *democratic values*, while not showing a significant grade by status interaction, did show a within-year difference favoring the program students at grade 4 (p=.03, eta^2=.09), but no difference at grade 8. These relationships can be seen in Figs. 5 and 6.

Discussion

In spite of our concern about the degree to which the differences that had emerged earlier would continue in the new educational setting, the findings indicate that the program did have some sustained effects on children's social development—two years (four years for some students) after the conclusion of the program.

The results show several patterns: One variable—*conflict resolution*—which had shown strong effects in earlier years, maintained this effect in the 8th grade. Two *moral reasoning* variables (concerned with *helping* and *transgressions*) showed a small effect when combined across years, although the differences were generally not significant within years. *Self-esteem*, which had *not* shown an effect when last assessed in elementary school (in 4th grade), showed a quite strong effect favoring the former program students at eighth grade. Finally, *democratic values* had shown a significant program effect at 4th grade, but this disappeared in the 8th grade.

The small sample size makes us somewhat uncertain about the stability of these findings. It is interesting, to speculate, however, about the reason for the obtained pattern. We would suggest that *democratic values*, the variable whose effects diminished from 4th to 8th grade, may be the most reflective of the school environment—many of its items refer to classroom situations or settings (e.g., "The best students in a class should be the ones to decide which new project the class should start"), and all of them concern issues that are relevant to life in classrooms

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significant sex by grade interaction for empathy, such that the difference between boys and girls in empathy was much larger at 8th grade than at 4th grade (p=.004, eta^2=.15).

(asserting one's positions, willingness to compromise about them, having equal opportunity to participate in class decisions and activities). Our informal observations, as well as the teacher reports, indicated that the opportunity to do these things was less in the intermediate school than it had been in the elementary schools, even for the comparison students. It seems consistent with this that the *democratic values* scores declined somewhat for students in *both* the program and the comparison schools from 4th to 8th grade (see Fig. 6).

The variables that *did* show differences in the 8th grade assessment may be more "internal," and thus more resistant to differences in the school environments. Students in the program schools had presumably come to understand principles of conflict resolution during their years participating in the program, principles that may be to some degree independent of the particular classroom setting. Similarly, the fact that students' *self-esteem* shows a program effect only at 8th grade (and not at 4th) may indicate that the program experience helped students to develop a measure of personal confidence, but that this was consolidated only after they had completed the program.

The fact that at least some effects of the program did survive the transition to intermediate school (and at least one occurred that had not been seen earlier), leads us to believe that this program has potential for enhancing the social development of children in ways that extend beyond the immediate program experience. Of course, it is likely that the effects could be enhanced and extended still further if the intermediate school experience (and later the high school experience) were more consistent with that of this program, but that is a matter for another project.

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Table 1

Mean Attitude and Perceived Environment Scores for Teachers in Project Elementary Schools and in Intermediate School

Domain and Variable	School: Program Elementary (n=27-30)	School: Comparison Elementary (n=15-22)	School: Intermediate (n=22-23)	*F*	eta^2
Teacher Attitudes					
Control ideology	9.21_a	6.72_b	6.99_b	3.80*	.05
Trust in students	14.54_a	13.94_a	10.35_b	20.49***	.23
Need to control students	14.23_a	14.61	16.82_b	3.90*	.05
Feeling of efficacy as teacher	20.26	20.89_a	19.41_a	3.17*	.04
Conception of ability as fixed	7.58_a	8.78_b	8.52	3.47*	.05
Teaching Practice and School Climate					
Use of extrinsic controls	12.08_a	16.87_b	15.81_b	4.40*	.07
School is business-like, task-oriented	2.97_a	3.39_a	4.04_b	11.42***	.14
School is quiet, orderly	2.73_a	3.22	3.35_b	3.05*	.04
Atmosphere is tense	1.35	1.50	1.52	<1.0	.007
Strong classroom control and direction by teachers	3.13_a	3.56	3.87_b	8.37***	.10
Student independence, autonomy	3.39_a	3.22_a	2.52_b	8.97***	.11

Note: Means with different subscripts are significantly different ($p<.10$ by Scheffe test).

$^+$ $p<.10$, * $p<.05$, ** $p<.01$, *** $p<.001$,P

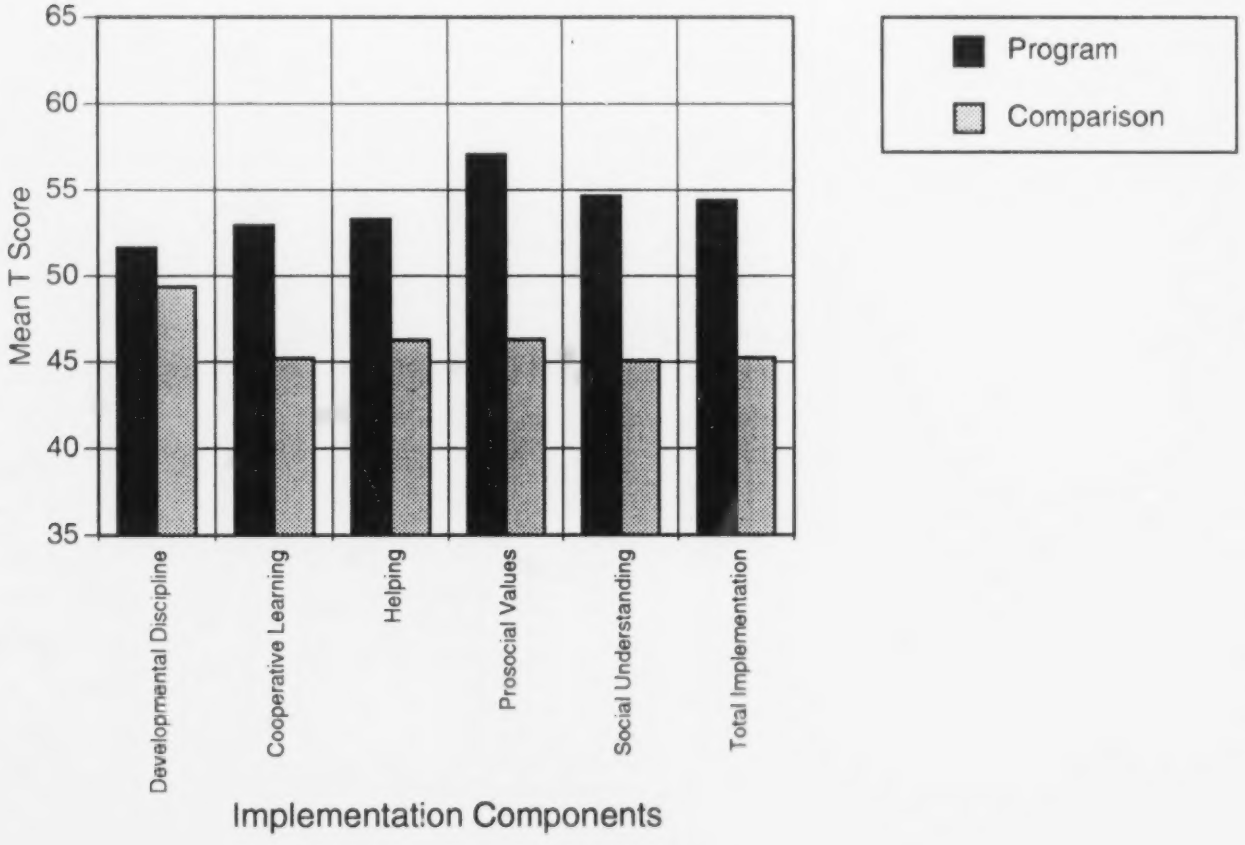

Fig. 1. Classroom Activities in Program and Comparison Classrooms

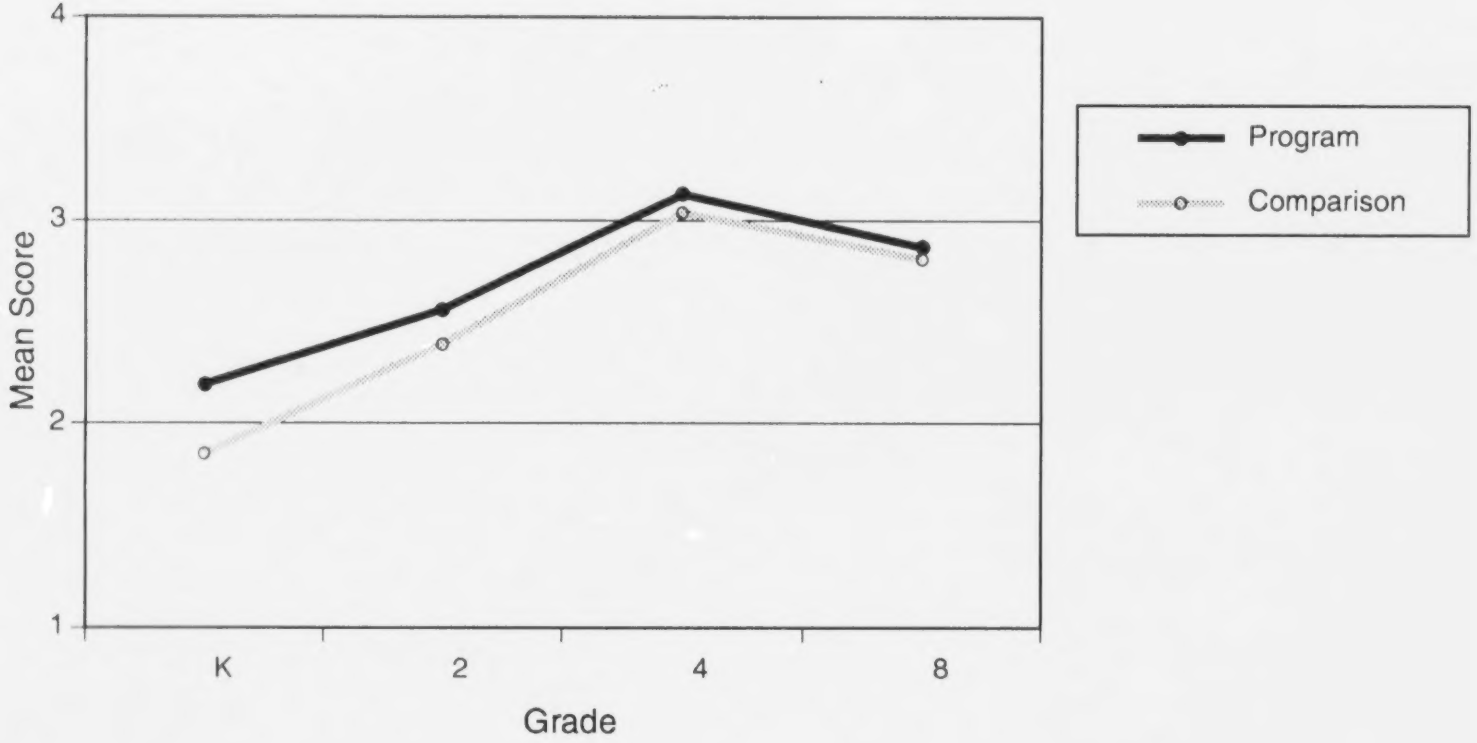

Fig. 2. Level of Reasoning About Transgressions

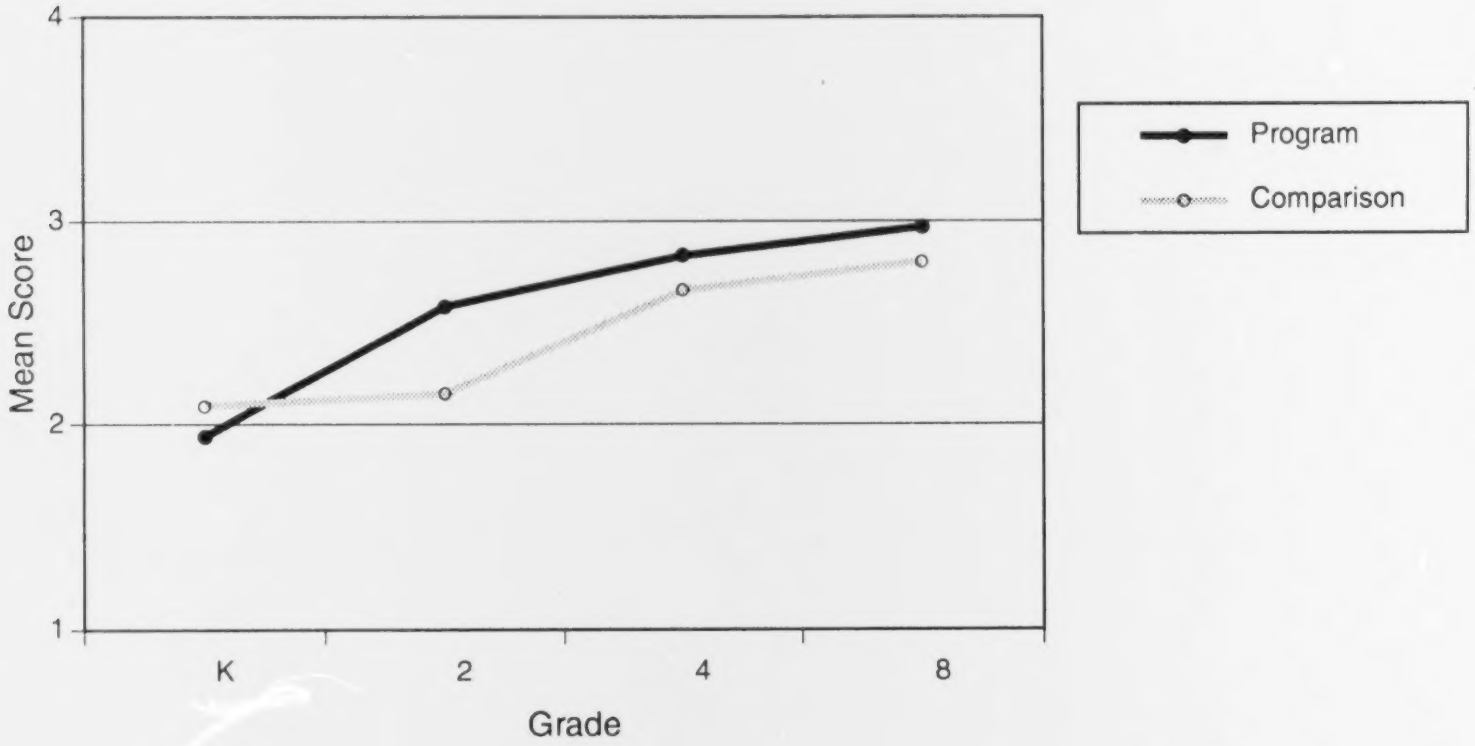

Fig. 3. Level of Reasoning About Helping

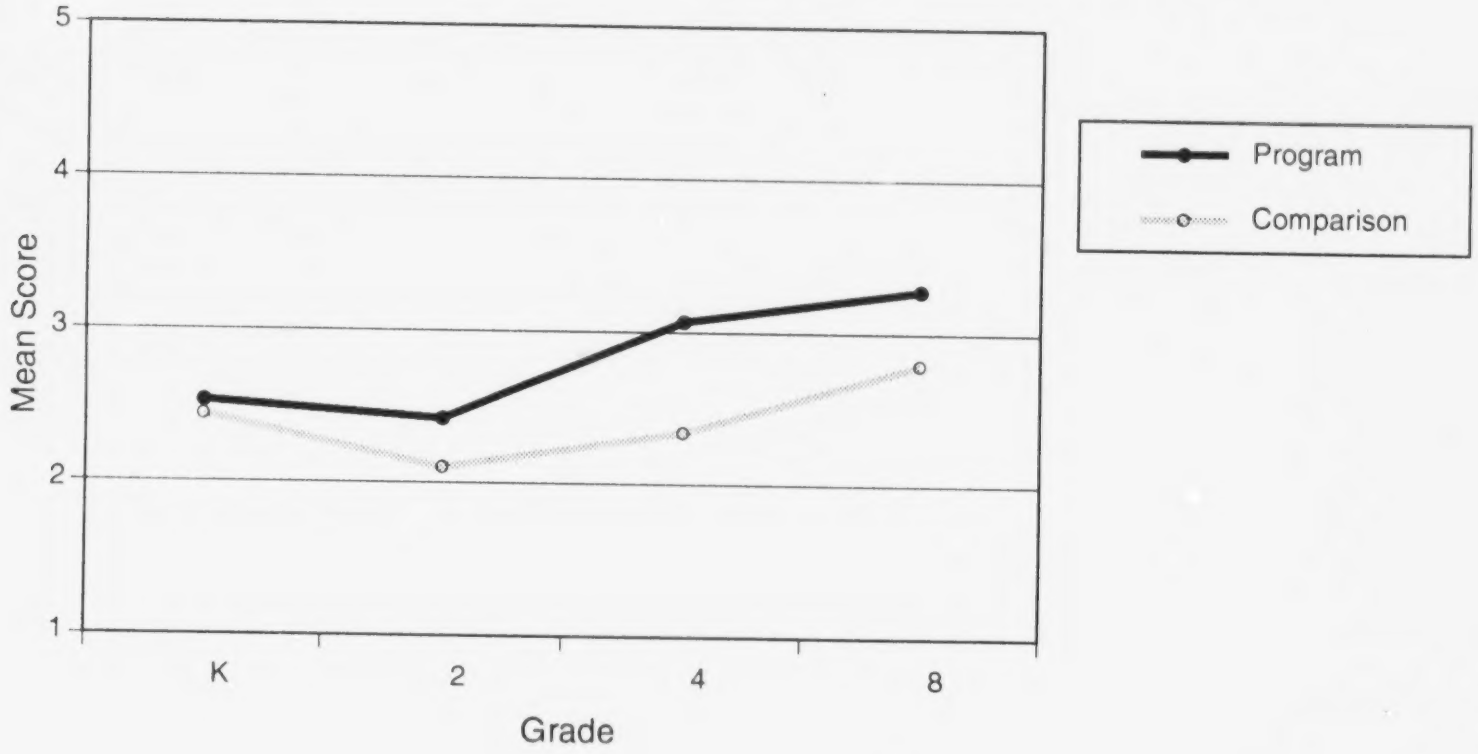

Fig. 4. Conflict Resolution

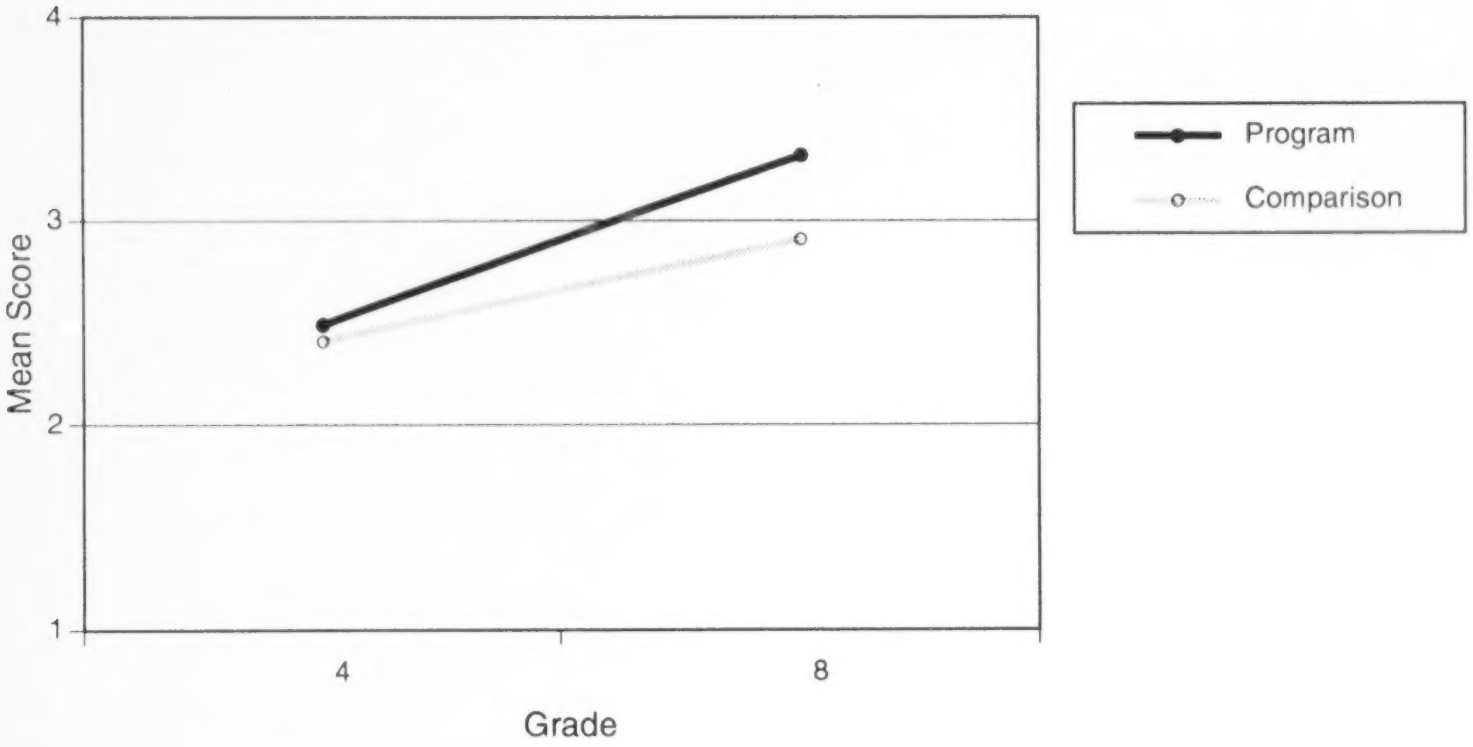

Fig. 5. Self Esteem

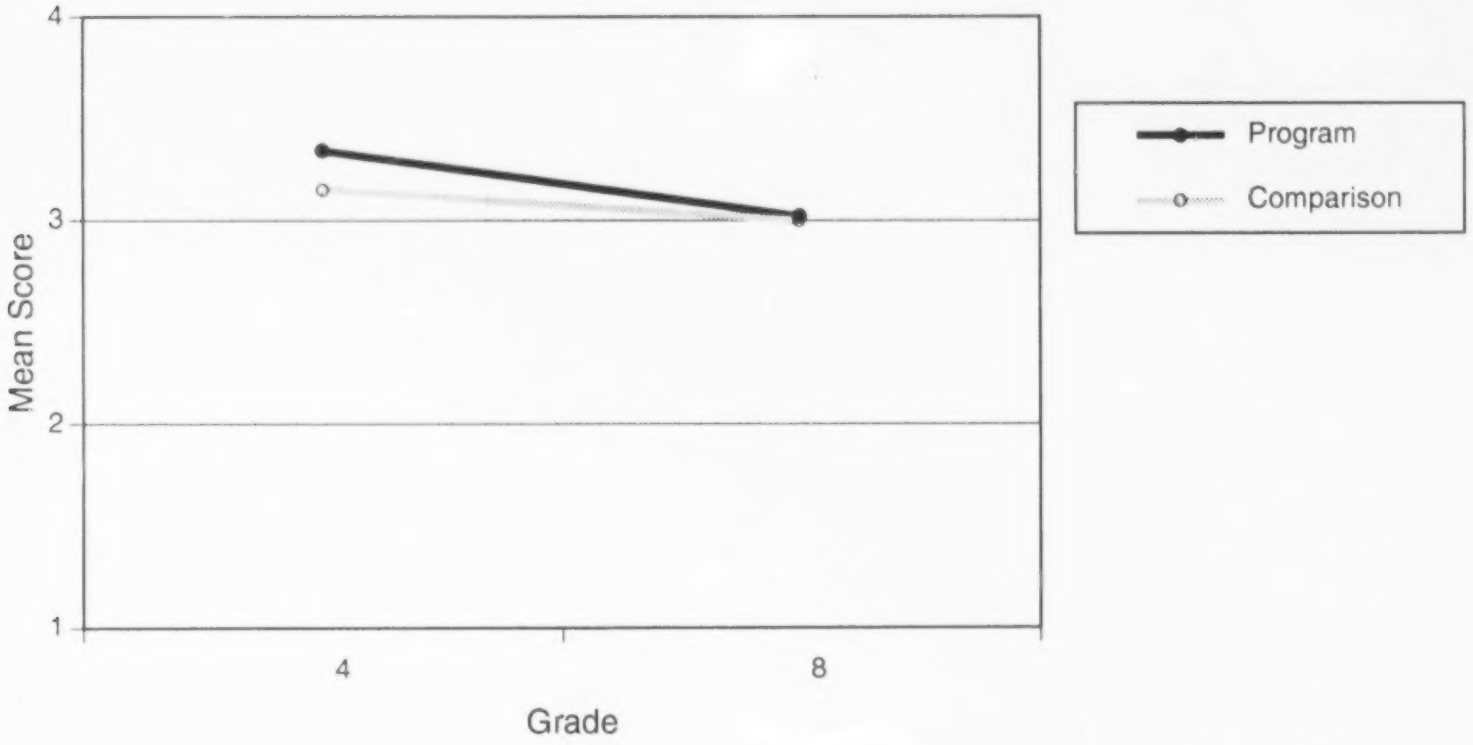

Fig. 6. Democratic Values